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Ship Personnel Hazards[1]

By Irving L. Evans, *United States Shipping Board, New York*

This appeal is directed to the enlightened self-interest of shipowners. It is hardly necessary to remind the reader that all of us are in a sense part owners—through the United States Shipping Board—of a vast tonnage. Mr. Evans who is Vice-President of the United States Protection and Indemnity Agency has combined in this paper an intrinsic human interest, a demand for research, and a demonstration that on the seas as well as on the railways and in the shops, safety pays.

WITHOUT seamen and without their wonderful record of achievement, a heroic heritage with which they have endowed the world, men today would live in hopeless isolation.

In the old days, mariners were skilled in the art of handling great ships under sail, making them respond to their will, aided only by the wind. Today, with every device of recent invention lavished upon a ship, human control and direction is still essential. Duties and responsibilities of men have increased in proportion to size of ships, their engines and their complicated machinery and equipment.

THE SEAMAN'S LEGAL RIGHTS

The seaman's relation to the shipowner is one of contract. The contracts of seamen have always been considered among the most important in Admiralty, for the reason that a good crew is essential to a successful voyage. For this reason, the utmost encouragement and the fullest protection have always been accorded to seamen, and such is now the established policy of the Admiralty Law.

Justice Story, in a very interesting opinion written in 1832 about the rights of seamen to maintenance and cure, said:

> They are a class of persons remarkable for their rashness, thoughtlessness and improvidence. They are generally necessitous, ignorant of the nature and extent of their own rights and privileges, and for the most part incapable of duly appreciating their values. They combine in a singular manner, the apparent anomalies of gallantry, extravagance, profusion in expenditure, indifference to the future, credulity which is easily won, and confidence which is readily surprised. Hence it is, that bargains between them and shipowners, the latter being persons of great intelligence and shrewdness in business, are deemed open to much observation and scrutiny; for they involve great inequality of knowledge, of forecast, of power and of

[1] A paper presented at the twelfth annual congress of the National Safety Council, Buffalo, October 4, 1923.

condition. Courts of Admiralty, on this account, are accustomed to consider seamen as peculiarly entitled to their protection; so that they have been, by a somewhat bold figure, often said to be favorites of Courts of Admiralty. In a just sense, they are so, so far as the maintenance of their rights, and the protection of their interests against the effects of the superior skill and shrewdness of masters and owners of ships are concerned. (Brown vs. Lull, 2 Sumner 449.)

There were no legal requirements as to hours of labor at sea before 1915, although long established custom had divided the deck crew into two watches and the engine room crew into three watches. There were, of course, certain variations and modifications of this plan in special trades and at certain times for special reasons. The established custom has now been enacted into law.

It has been carefully worked out and is now fixed by law just how much and what kind of space shall be provided for the crew's quarters. Proper washing and bathing facilities are also required.

Since 1790 the Statutes of the United States have specified a scale of provisions to be carried upon ships. Seamen have an option, under the law, of accepting the provisions offered or of demanding the legal scale.

American merchant vessels which ordinarily make voyages of more than ten days' duration and carry a crew of twelve or more seamen are required to have, in addition to the regular crew space, a separate compartment for hospital purposes, with at least one bunk for every twelve seamen, provided, however, that not more than six bunks may be required.

All American ships engaged in foreign trade or in trade from Atlantic to Pacific, or vice versa, if of more than seventy-five tons, are required to have on board a properly supplied and equipped medicine chest. Practically all ships now carry such equipment, and many carry much more than is required.

Since early in 1922, applicants for a deck officer's license have been required to pass an examination, in addition to the usual requirements, showing that they are qualified to render first aid at sea.

It is the duty of the United States Local Inspectors of steam vessels to inspect ships once each year. Ships cannot continue to sail without passing such annual inspection. Among other things, the Inspectors require that exposed machinery or places of danger which they observe and which can be guarded, have the protection placed in position and reported to them, with the other things required, before the ship gets her new inspection certificate.

Seamen becoming ill or being injured while in the service of a ship, except by reason of their own vices or willful misconduct, are entitled to maintenance and care or cure at the expense of the ship, irrespective of the negligence of any other member of the ship's crew, and irrespective of whether the seaman was guilty of contributory negligence.

The United States Circuit Court of Appeals, for the Second Circuit, in the case of The Bouker No. 2, said:

By the custom of the sea the hiring of sailors has for centuries included food and lodging at the expense of the ship. This

is their maintenance, and the origin of the word indicates the kind and to a certain extent the quantum of assistance due the sailor from his ship. We agree with the remark in The Mars, supra, that:

"The word 'cure' is used in its original meaning of care, and means proper care of the injured seaman, and not a positive cure, which may be impossible."

Seamen cannot ordinarily recover damages, however, unless fault on the part of the ship can be shown to be that of the owner. In other words, unless the vessel is unseaworthy or has failed to supply and keep in order the proper appliances appurtenant to the ship, neither she nor the owner is liable for injuries to seamen, except through negligent acts of the master or other members of the crew.

This duty on the part of the ship toward the seamen corresponds somewhat to the requirement on shore that the employer must furnish his employees with a safe place in which to work.

The seaman's right to maintenance and cure is regarded by the Admiralty Courts as in the nature of extra wages or compensation, and he has a maritime lien for these as well as wages to the end of the voyage when he has been injured or becomes ill during the voyage, just as he does for his regular wages. If a man is replaced during the voyage by another seaman, he is still entitled to wages to the end of the voyage, and will either be sent home at the expense of the Government as a destitute seaman, or must be returned at the expense of the ship.

RECENT TENDENCIES

It must therefore be apparent that the rights, duties and obligations of seamen place them in a class which is comparable to no other class of employees in the world. For centuries, the maritime industry has had and carried the responsibility and expense for injuries received and illness incurred by its employees in the line of their duty. The steps taken during recent years by most of the States toward the passage of Compensation Laws, placing upon each industry the duty of providing compensation for those injured and the dependents of those killed in that industry, are only following some of the general principles which have been applied for centuries in the maritime industry.

Repeated efforts have been made in very recent years to change, by legislation, the long established rule which prevented seamen from recovering damages on account of injuries sustained in line of duty. The Supreme Court has held in substance several times that the Constitution of the United States seeks to preserve the uniformity of the principles of the Maritime Law, and that to the extent that such laws are in conflict therewith they are unconstitutional. The trend of recent legislation referring to seamen has been generally favorable to their interests.

The whole tendency during recent years has been toward the advancement of safety at sea. Many of these improvements have been required by law, while others have been made voluntarily by the owners of vessels, because there has been a somewhat broader interest taken by the shipowners in the welfare of the men who go to sea.

SMALL PROPORTION OF LIVES LOST

Unfortunately, there is no department, bureau or other agency which keeps a record of all marine accidents —that is, personal injuries and deaths. The United States Steamboat Inspection Service does keep a record of the number of deaths occurring on and in connection with American vessels. They show that for the fiscal year ending June 30, 1922, the latest figures available, the total number of lives lost from all causes was 266, a decrease of 64 from the previous year. These were divided—95 passengers and 171 crew. Of the lives lost, 178 were due to suicides, accidental drownings and other causes said to be beyond the power of the Steamboat Inspection Service to prevent. The remaining 88 deaths are officially reported to have been due to collisions, founderings, accidents, etc.

During the same period, 235,802,603 passengers were transported on vessels required to report the number of passengers carried. The figures show that the life of only one passenger was lost out of every 2,482,132 carried. It is therefore apparent that ships furnish a pretty safe means of travel. The small number of accidental deaths among the crews, which might have been prevented, shows, when compared with the average number of men employed, that ships are also as safe places to work as will be found in any other industry. This does not mean that all has been done that can or should be done.

Coming now to the consideration of the more direct problem of ship personnel hazards, we must first consider very generally the class of vessels or the trades in which they are engaged. There are three general classes—first, those in the ocean, coastwise and intercoastal trades; second, those upon the Great Lakes; and third, those on all other lakes, bays, sounds and rivers. The third class is too widely separated and is operated under too widely varying conditions to be easily reached or dealt with.

Practically all the vessels engaged in the ocean, coastwise and intercoastal trades are represented by membership in one of the following associations; The American Steamship Owners' Association; The United States Ship Operators' Association; The Pacific American Steamship Association, and The Ship Owners' Association of the Pacific Coast. The United States, as the owner of a substantial part of the American tonnage, is not a member of any of the associations named. However, the United States Steamship Operators' Association is composed largely, if not wholly, of Managing Agents for Government ships.

About 80 per cent of the tonnage upon the Great Lakes is represented by the Lake Carriers' Association, and a substantial portion of the remaining 20 per cent is represented by the Lumber Carriers' Association.

TWO WAYS OF REDUCING ACCIDENTS

The Lake Carriers' Association, its members and the men on their ships, have made marked and commendable progress in the prevention of accidents on board ship. This progress has been caused by two prime considerations: first, there has been an

awakening of an intelligent interest in the shipowners and in the men themselves for the safety and welfare of those employed on the ships; second, some of the leading steamship companies on the Great Lakes carry no insurance against claims for personal injuries and deaths occurring on their ships, but take care of such accidents and claims out of special reserve or insurance funds set up in their own accounts for that purpose. It is, therefore, to the direct financial interest of the shipowners to keep accidents at a minimum. Several of the large steamship companies on the Great Lakes save many thousands of dollars each year by following careful and systematic plans for accident prevention, then paying their losses instead of paying insurance premiums.

This policy of accident prevention also works to the advantage of the shipowners on the Great Lakes who do carry insurance, because they too are working to the same common end, with the result that their insurance premiums for protection against this class of claims have been reduced in proportion to the success of their efforts.

On the other hand, those engaged in the operation of ships in the ocean and coastwise trades, with certain comparatively unimportant exceptions, carry insurance in either the American or other Protection and Indemnity Clubs or Companies protecting themselves and their ships against personnel hazards. There are individual shipowners and agents engaged in the ocean and coastwise trades who are just as deeply interested as the shipowners on the Great Lakes, and for precisely the same reasons, but there is no organized plan, either in existence or in prospect, for uniform and combined efforts toward accident prevention on their ships.

ANALYSIS OF SHIP PERSONNEL HAZARDS

Among the most prominent and frequent proximate causes of injury on board ship are:

1. Lack of proper leadership.
2. Lack of prudence on the part of the men themselves.
3. Use of intoxicating liquors, and narcotics.
4. Failure of those on board to keep the ship's equipment and appliances in order, and to properly use the same.
5. Large turnover in the personnel on each ship after each voyage.

A very large percentage of all accidents on board ship may be traced in one way or another to these causes. They will be discussed in order.

Lack of proper leadership

The art of leading or commanding men is absolutely essential to the successful handling of a ship. A good crew is vitally important to a successful voyage. There is no other industry in which leadership of the highest type is so essential. This is demonstrated daily. One ship will come in from a long and successful voyage with everybody well satisfied, and no reports of crew trouble, accidents or injuries of importance. On the other hand, another ship of the same type, in the same trade, will return

from a similar voyage, having had crew trouble throughout her absence, and with everybody ready and anxious to leave when the voyage is ended. There will be numerous reports of major and minor accidents, with possibly one or more men left in hospitals in foreign ports on account of injuries.

It is the man who lacks knowledge, experience, foresight, judgment and the other necessary qualifications for leadership who will leave hatchways open without having lights or guards placed near them, or other measures taken to prevent accidents, while cargo is not being loaded or discharged. It is the same type of man who orders a ladder put over the side for the crew to use in going ashore and returning to the ship, without seeing that it is secured to prevent its slipping or falling; he also fails to have a light placed at or near the point where the ladder is, or to see that the lashing holding the ladder in place is not broken when the tide falls and the ship settles somewhat.

The larger and faster ships have in no way lessened the demand upon the ancient art of seamanship. The seamanship of today is no less important because new and different gear is used; because steel and fibre ropes of unprecedented size are now required; and because tackle of all kinds is heavier and stronger. An understanding of the art of seamanship in its broad sense is of importance not only to those who command, but to all who contribute toward the construction, equipment, management and navigation of a vessel. A ship is safe only so long as she is both seaworthy and ably handled. While she may sail smoothly and quietly in fair weather, the sea is no respecter of ships or persons. It is always ready, at the first sign of failure or weakness, to rush in and destroy both life and property. One small mistake or error in judgment, a few second's hesitation in giving the proper order, may make a comfortable and safe ship a horrible death trap. A great passenger liner, with hundreds, perhaps thousands of human beings on board, and millions of dollars worth of property, rushing through the sea at high speed and with tremendous momentum, may become a palace of death when she cuts down another vessel, rams an iceberg or a derelict, or runs upon a reef or rock. At such times and in such circumstances, it is only those who are really worthy of the name "seaman," those fundamentally worthy of the sea, who meet the real tests. The weak, the hesitant and the incompetent may succeed on shore, but the sea sooner or later uncovers their shortcomings and disaster often follows.

The basic qualities for leadership at sea grow out of constant contact and experience with danger. This places the art of seamanship upon the very highest plane of responsible human employment. It is these exacting requirements, having their origin in the law of the sea, which cause the strong feeling among seafaring men, almost akin to religion, that disaster is disgrace. This inner feeling of the real seafarer is often expressed by the master going down with his ship. He feels that his seamanship has failed; that he has fallen

short in an emergency; that he has lost his shield of honor; and he therefore pays the price with his life.

Carelessness and indifference of the men toward safety

Seamen are generally daring and reckless. Many of them lack the power to measure the danger which confronts them. They lack that alertness and watchfulness so important to a man in a class of work which is so often surrounded by dangers. An example of this is furnished by the case of a man who used an oil can, instead of a brush which was available, to lubricate gears which were guarded. The spout of the can got caught in the gears and the man put his hand behind the guard in an effort to recover it. This resulted in the loss of all the fingers on his hand.

Seamen are usually ready and willing to respond in a situation of danger with little thought or regard for their own physical welfare. A man was helping lift material from the hold to the deck of a ship at sea. The guy line, used to keep the draft from swinging as the ship rolled, broke. One of the crew was ordered to catch hold of the draft to prevent its swinging. He attempted to obey the order and was carried over the hatchway and then fell to the bottom of the hold, a distance of about 35 feet, and landed upon the steel tank top!

The very life which the seamen follow tends to make them fatalists.

Intoxicating liquor and narcotics

Most places visited by American ships engaged in foreign trade still sell liquor of some kind and quality. The result is that many of the seamen return to their ships at times feeling pretty well satisfied with the life of a sailor. They usually have not imbibed to the point where they have to be helped, for then they are usually looked after by shipmates. It is the fellow who is just happy, indifferent, reckless and thoughtless who comes on board and either falls off the ladder, into a hatchway, or down a companionway or elsewhere without even knowing the danger until he is in a hospital.

Eleven out of twelve masters and chief engineers, whom I have questioned recently as to the most frequent single cause of accidents to seamen, have replied with the single word "Drinking." Accidents which may be traced, either directly or indirectly, to the use of narcotics are, unfortunately, increasing.

Failure to keep the ship's equipment in order and to use it properly

The failure of those on the vessels to use properly the equipment and appliances furnished and to keep them in good condition, notwithstanding the shipowner has furnished the material with which this may be done, is a frequent cause of accidents. Officers and men alike will frequently use an old, wornout fall, pennant or other equipment until it breaks and possibly injures someone, instead of replacing it from stocks on board. Every well managed company has on board its ships a supply of new rope, blocks, tackle and gear of all kinds, together with many spare parts to replace any appliances that

may be worn out or broken during the course of the voyage. There is, therefore, usually no excuse for the failure of those on board to replace old and wornout gear.

The improper use of equipment often results in accidents because the men attempt a particular job without getting the proper equipment or gear or by using the equipment at hand in a careless, negligent or indifferent manner. As an example, a man was operating a cargo winch, when the running part of the fall got jammed between the turns around the drum. Instead of clearing the fall, which he saw and understood, he proceeded to go ahead according to signals. The result was that the fall wound in the reverse direction on the drum of the winch. While lifting into place one of the strongbacks for the hatches, the weight pulled the fall out of the jam on the drum, causing the draft to drop suddenly and throw another member of the crew into the hold, causing his death.

Large turnover in personnel after each voyage

The reason why many accidents are caused by the change in personnel at the end of each voyage must be perfectly apparent. The men often come aboard the ship, unacquainted with its construction and general layout, frequently only a short time before the vessel is ready to sail. While they are performing their regular duties and at the same time getting acquainted with the ship, they often get into difficulties resulting in more or less serious injuries.

NEED FOR ADEQUATE DATA

It is impossible to cover here the entire field of causes of accidents. They range all the way from men falling from the smokestack or masts to their falling upon the deck where spray has blown up over the side and moistened the boards.

In order to give a fairly concrete picture of the situation, we have selected at random 100 cases handled by our Agency—that is, cases settled. They are distributed as follows:

1. Falls (including slipping on deck from water, ice, oil, etc.)	48
2. Heavy weather (men struck by seas, etc.)	5
3. Handling heavy weights	9
4. Working around machinery	6
5. Burns and scalds	5
6. Handling lines and running gear (rigging)	8
7. Handling dunnage	5
8. Fumigating gas	2
9. Miscellaneous	12
Total	100

The marine industry is seriously handicapped in that there is no source of information, reliable or otherwise, showing even the approximate number of major personal injuries, to say nothing of those of a minor nature, occurring on board ships. The first and one of the most important steps in accident prevention is to know the number and principal causes of accidents, in order to get at the root of the difficulties and correct them. It is therefore of interest to shipowners, either through their respective associations or otherwise, to collect, compile, classify and distribute such information.

SAFETY PAYS

It is apparent from what has already been said that there must be some sound business reason advanced, in addition to human interest, before a shipowner is going to think seriously about or take a great interest in accident prevention on board ship. We are not advocating the self-insuring idea to the ocean and coastwise shipowners or anyone else, because it is only strong and very well managed companies which can afford to undertake such an enterprise. We do believe, however, that it will be proportionately as profitable to have a crew which is 100 per cent sound as to have ships using oil instead of coal as fuel, or Diesel or turbine engines rather than the reciprocating type. The shipowner adopts these things, not because they are new, but because they offer prospects of profit or gain which the old method or system did not offer. A healthy, sound crew, protected against injuries and illness just as far as possible, will make the operation of the modern ship, with her modern machinery and equipment, so much the more profitable.

Efforts at accident prevention by a few American shipowners acting alone will avail nothing more than the very great personal satisfaction to the individual companies of knowing that their lines have had less than the average number of injuries or deaths. If, however, all or a substantial part of the American shipowners work together, through their respective associations or otherwise, upon a campaign of education for accident prevention on board ship—first, among their shore staffs; second among their ships' officers; and third, among the unlicensed personnel—they can and will soon be able to demand and receive a reduction in their Protection and Indemnity insurance premiums. This, however, is the smallest part of the prospective benefit, because the ships frequently pay and feed men for days and even weeks, while receiving neither work from them nor reimbursement from the underwriters. In addition, the general morale and the consequent good work from the crew will add to the ship's efficiency and to the success of the voyage.

In order to reduce the number of accidents on board ships, what is needed now is not more and better laws, but greater interest on the part of the shipowners, the officers and the men themselves, in accident prevention. The creation of an interest in accident prevention will develop prudence, the power to measure danger; and a certain alertness, watchfulness and aptitude for observing and correcting defects or dangers which may result in accidents. As a direct, natural and logical outgrowth of the development of these qualities, there will be more efficient and profitable operation of the ships. The result will be beneficial to both seaman and shipowner.

Psychology and Industry in France and Great Britain

By Douglas Fryer, *University of Utah*

A radical difference between French and British industrialists in attitude toward development of scientific technique in personnel practice was observed by Dr. Fryer during the past summer. The French are thoroughly conservative, skeptical. The British, though wary, show a determination to get at the facts. The national scope of the British organization for promoting research in industrial psychology and physiology is noteworthy.

FRANCE

EMPLOYMENT of a psychologist for solving personnel problems of industry is a novel idea to business men in France, even more generally than in America. Nevertheless, in spite of this lack of backing, some psychologists are working in industrial and employment psychology. Others are sympathetic but not particularly interested, while still others are definitely antagonistic, taking the stand that psychology has nothing to offer business in the solution of its personnel problems.

Students of psychology at the Sorbonne asking to be prepared for positions in industry, are told that there are no such positions. But their demand for training in applied psychology is being met to some extent by courses offered in the Institute of Psychology. Pieron conducts each year a theoretical course in psychological measurements and statistical methods. In this course he is concerned with the theories underlying the possibility of measuring mental processes, rather than with the practical application of measurement methods to business and vocational purposes.[1] Practical work in the section of applied psychology at the Institute is offered by M. Lahy who takes up the determination of aptitudes, graphic and cinematographic study of occupational movements (time and motion study), and signs of fatigue. M. Lahy, at the Laboratory of the Asile Clinique attached to a psychiatric hospital, is at work upon problems of vocational

[1] M. Pieron is Director of the Laboratory of Physiological Psychology at the Sorbonne. The Secretary of the Institute of Psychology and Assistant Director of the Laboratory, M. Meyerson, maintains a friendly interest in the applied field but, like Pieron, is chiefly concerned with physiology and psychology. For a description of psychological work in Paris, see "Instruction in Psychology in Paris" by Morris S. Viteles, *The Psychological Bulletin*, 1923, *20*, 545–552.

psychology, scientific management, personnel selection, and vocational guidance. He is recognized as the scientist most interested in the development of these techniques in France, and his book, now in process of preparation, may be expected to furnish an authoritative statement of the possibilities for applied psychology in his country.

Recently Lahy has been requested by a firm employing numerous machine operators to come into the plant and begin experimentation upon tests for the selection of several types of personnel. This, according to Meyerson, represents practically a unique evidence of the dawning appreciation in French industry of what psychology has to offer.

Generally speaking, the French business man refuses to use methods outside his own experience. In complaining of this inertia, a French scientist said to me,

> The French people are very timid, there is no spirit of adventure in them, they are afraid to undertake anything that is new, routine counts for everything. The Frenchman cannot be brought to invest in the future as can the American. If M. ——— (a prosperous business man) were shown that by spending a hundred thousand francs today he would make a hundred million tomorrow, he would not consider it. It would be too far out of the routine of his business.

This temper is one reason why applied psychology has not been more developed by the French. Unlike America, France did practically nothing with psychology in the army during the war, and her army personnel system has been severely criticized. France is older in spirit than America or even England. Her ways of doing things, despite a democratic form of government, have come down to her through many centuries. Retail business is largely carried on by the small tradesman with his wife as cashier. The figuring is in small sums from day to day. These proprietors, of course, have no use for combinations, for business on a large scale, nor for applied science.

The French workman in large concerns is another obstacle to the application of psychology to business. Extremely individualistic, he wishes to do things in his own way. He is willing to work long hours but resents being hurried. He fears that if standardization is introduced into industry he will lose his liberties. Interest of French psychologists in the methods of the efficiency engineer and inclusion of these under applied psychology may partly account for this feeling of the worker, a feeling which on this side of the Atlantic has not been lacking with regard to the spread of scientific management. Not only among psychologists, but among other scientists as well, there is a naïve respect for Taylorism,[2] and any consideration of the division of labor, after the monumental philosophy of Durkheim, is certain to attain some publicity among French thinkers. However, it seems highly probable that if applied psychology in France had not been made to include Taylorism, the workman's opposition would still constitute a problem. The labor unions do not take

[2] See the use made of this by Edmond Perrier in "Eugénique et Biologie" in *Eugénique et Sélection*, Alcan, Paris, 1922.

kindly to the idea of scientific method, particularly as applied to personnel selection.

Another obstacle in the way of applying psychology to business is the general arrest in the educational testing field. Simon, regarded by the government as the representative of this movement, is said to have made a trip throughout France, exhorting the various universities to use Binet's test exactly as it came from the hands of the master. He has made a fetich of the test and refuses to consider any possibilities of development beyond it, thus checking natural advance along the very line of progress which France initiated.

But France in her extreme conservatism may have a lesson for America in the application of psychology to business. She is slow to accept new ways and America perhaps too quick. Just after the war, psychology, personnel management, testing, became popular. Inexperienced persons, sometimes quacks with ready-to-wear remedies for all problems, entered the field. The whole idea was over sold. Impossible results were predicted, and when these did not appear, a counter-reaction set in, aided by the business depression.

In America, as in France, the small proprietor employing few workmen cannot make use of scientific psychology. Only the large firm, whose personnel is numerous enough to furnish the necessary laboratory, can afford to make experiments, take the risk involved in the adoption of a new invention, and look toward the double result of advancement of knowledge and increase in industrial efficiency.

GREAT BRITAIN

Just as the development of personnel administration and scientific management was greatly stimulated in the United States by the work of the Psychological Division, the Personnel Division and the Morale Branch of the Army, so, too, in Great Britain the use of applied psychology and physiology, now becoming firmly established, developed out of the attempt to realize greater industrial and military efficiency.

Most of us are familiar with the work of the Employment Bureaus under the Ministry of Labor, as well as with the Industrial Fatigue Research Board which began operations under government subsidy in July, 1918. Out of the welfare work of the British Army was developed "The Industrial Welfare Society" and out of the psychological work of the Army came the "National Institute of Industrial Psychology."

One interesting feature about these organizations is that they are national in scope, their purpose that of centralization of effort and orientation of research workers. England is now in a stage of development in the practical use of psychology in business approximating that of the United States the year following the signing of the armistice. She is not only willing but anxious to learn the methods in use in America, and by her somewhat slower growth has avoided some of the pitfalls into which America rushed, and which France, by her conservatism, has never approached. The psychologists of Great Britain are avoiding the error

—made by a few American psychologists—of uncritical acceptance of the general intelligence test as a sole criterion for the selection and promotion of workers. But this does not mean that they discard the use of the general intelligence test as one criterion. The attitude of a leading British worker who has been misunderstood by American journalists, notably by Mr. Walter Lipmann, can best be seen in a quotation from his most recent statement:[3]

> Of all psychological capacities, general intelligence is the easiest to measure. . . . . A certain degree of general intelligence . . . . differing in differing instances, is needful—and in theory assignable—for almost every kind of industrial work. Most particularly, by its very nature, general intelligence seems related to the power to learn—to the ability to adapt oneself quickly and efficiently to new tasks and situations. Hence, for any trade which does not demand mere repetition of routine movements, or the mere reiterated application of knowledge and skill already acquired, general intelligence must be fundamental. In view, therefore, of the present difficulty of measuring other mental qualities, I am inclined to suggest that for the time being *the chief* (though not the sole) *provisional guide in making vocational recommendations should be the degree of the candidate's intelligence.* (Italics not in original.)

Burt is here speaking of vocational guidance, but the theory is equally applicable to personnel selection and, furthermore, illustrates the attitude among psychologists in Great Britain in regard to the general intelligence test.

[3] Cyril Burt, The Principles of Vocational Guidance. Seventh International Congress of Psychology, Oxford, 1923.

The Industrial Fatigue Research Board has placed considerable reliance upon the general intelligence test but so far has found aptitude tests of little value. Few firms in England use trade or aptitude tests and except for the intelligence test very little testing is being done in industry. In a paper read before a conference of the Industrial Welfare Society[4] the attitude is taken that for practical purposes of industry, "The factor of intelligence . . . . is sufficiently definite to be isolated and tested. . . . ." On the other hand, "no reliable vocational tests for apprentices in the skilled trades are at present available."

Lang mentions vocational tests for less skilled trades in use in America but feels that they must be greatly modified if applied to British workmen. Contrary to many American Psychologists, Lang holds that trained psychologists are not required for the testing of normals, declaring that while only trained psychologists can devise and perfect these tests, to apply them no such intimate knowledge is required. In other words, to use a delicate measure requires some training, but not as much as that of the psychologist who devised the measure.

All this does not mean, however, that the general intelligence test is accepted without criticism in Great Britain. There, as elsewhere, psychologists are searching for a more accurate measure of innate ability, to be

[4] Lang, Wm., Supervisor of Apprentices, Albion Motor Car Co., Ltd., "The Present Position of Intelligence and Vocational Tests."

based less upon acquired information. Furthermore, there is some feeling that for the mechanical worker the test is not fair, that he expresses intelligence in a manner not to be measured by our present tests which are based too largely upon language attainment.

The terminology in use in Great Britain is somewhat different from that prevalent in America. Industrial psychology practically replaces the term applied psychology. The Institute of Industrial Psychology, for example, deals with a wide range of problems in applied psychology. This Institute is supported by donations and fees for research and experimentation. Its head is a foremost psychologist, Dr. C. S. Myers, F.R.S., who gave up for the applied field the direction of the psychological work at Cambridge University where he had the best equipped laboratory in Great Britain. One section of the Institute under a specialist, G. H. Miles, carries on experimentation in the field of scientific management, studying working conditions on request of particular firms, and publishing the results for the benefit of all. This section also promotes research in the psychological laboratories of the universities. Several industrial concerns are coöperating at the present time and a number of laboratory studies are also in progress. Most of the results are published in "The Journal of the National Institute of Industrial Psychology.[5]

A second section of the institute, the Vocational Section, has lately been organized under the direction of Cyril Burt. This division concerns itself with the problems of vocational selection (personnel selection or employment psychology) and vocational guidance. It is here that the best work in Great Britain is under way in the field of aptitude tests, some of the results of which have been reported in the journal of the Institute. Among recently completed studies are one devising aptitude tests of shorthand and typewriting, one for dress-making and one for engineering.[6]

This program of the Institute of Industrial Psychology has received aid from the Industrial Fatigue Research Board.[7] The work of this board is in danger of curtailment, but its publications stand as a monument of effort. The aim of the board has been to coördinate research in the laboratory with inquiries into actual working conditions in the factory, using the same methods as those of comparative psychology. In the laboratory, under controlled conditions, the influence of a single factor may be isolated and studied, but no accurate measure can be made of other disturbing factors which enter into the situation in the factory. The board does not instigate, as does the National Institute, research for the purpose of immediate practical results to particular industries, its aim being

[5] Address, 329 High Holborn, London, W.C.2.

[6] For fuller discussion of the present trend of vocational guidance in Great Britain see Douglas Fryer: "The Outlook for Vocational Guidance in Great Britain." *Mental Hygiene*, 1923, 7, 779–784.

[7] Secretary, D. M. Wilson, 15, York Buildings, Adelphi, London, W.C.2.

the coördination of research, the assembling of data and the formulation of generalizations applicable to industry.[8] The study of fatigue in Great Britain is an investigation of the entire personality of the worker in relation to the task and is thus correlated with industrial psychology and vocational guidance. The board now hopes, as stated in the third Annual Report, "that at the end of another year they may be able definitely to point to the establishment of certain fundamental principles governing fatigue and efficiency."

Welfare work is the term in vogue in Great Britain corresponding to our personnel administration. The Welfare Department in a factory is the Personnel Department and the Welfare Supervisor the Personnel Director. The Industrial Welfare Society[9] is the national industrial relations society of Great Britain. Welfare associations are organized in about eight centers. These associations are coördinated by the national society, the aim of which is to train welfare supervisors and to place them, as well as to be a clearing house of information.

[8] For more detailed account see "Psychology in Business—in England, France and Germany," by Morris S. Viteles, *Annals of the American Academy of Political and Social Science*, 1923, 110, 207–220. For best presentation of the functional relations of the industrial psychologist and the efficiency engineer, which is somewhat different from that current in America, compare: "The Efficiency Engineer and the Industrial Psychologist," by Charles S. Myers, *J. of Nat'l Inst. of Indust. Psych.*, 1923, I, pp. 168–172.

[9] Director, Rev. R. R. Hyde, 51 Palace, London, S.W.1.

It should be pointed out that the need of most industrial firms in Great Britain is not primarily to instigate modern methods of personnel selection. Possibly a score of the larger and better organized industries may be ready for this, but a more apparent need is that of lighting, ventilation, sanitation. Excellent work in personnel relations is developing, to be sure—that of the underground railway in London, for instance, or of the Rountrees at York, one of whom was trained at the psychological laboratory in Cambridge and now operates a laboratory of industrial psychology at the Cocoa Works. But in spite of these beginnings most industries have no personnel department and the hiring of labor by the foreman prevails to a large degree. There is in England a disregard for the personality factor in its relation to the task. To quote from the second Annual Report of the Industrial Fatigue Research Board (1921): "Industries for the most part are not yet fully alive to the importance of the human factor in production and to the still greater part this is destined to play in the future."

But Great Britain is waking up to the problems of the human being in industry, as is evidenced by the development of these national coördinating organizations. Attack upon these problems is being made in an organized manner, with enthusiasm and with government support. A government tax has been levied upon coal, one penny a load from the mines. This tax will produce five million pounds for welfare work (personnel work). It is said to have

the support of the mine owners, as well as the authority of the law. If this method proves successful, it will not be many years before the welfare work of other industries will be handled in the same way.

Great Britain has shown herself, unlike France, responsive to influences from the United States in regard to the use of psychological technique in business. She is ahead of America in having established these national coördinating organizations, although the United States is still in advance in application of the methods to business. With British psychologists and physiologists hard at work upon the problem, and with the development of governmental encouragement and support, it is an open question as to which country will permanently take the lead in the application of these sciences to industry.[10]

[10] In addition to articles already cited, recent papers upon the development of applied psychology in Europe are:

Muscio, B.: "Vocational Guidance (A Review of the Literature)," Reports of the Industrial Fatigue Research Board, General Series No. 4, London, H. M. Stationery Office, 1921.

"Second Annual Report of the Industrial Fatigue Research Board to 30th September, 1921 (including analysis of published works)," London, H. M. Stationery Office, 1922.

Miles, G. H.: "International Conference on Vocational Guidance at Barcelona," *J. of Nat'l Inst. of Indust. Psych.*, 1922, I, pp. 15–17.

Miles, G. H.: "Vocational Guidance in Foreign Countries," *J. of Nat'l Inst. of Indust. Psych.*, 1922, I, pp. 28–32, pp. 108–111, pp. 152–156.

Kitson, H. D.: "Vocational Guidance in Europe," *Sch. and Soc.*, 1922, XVI, pp. 645–650.

"The Early History of the N. I. I. P." and "First Meeting of the Scientific Committee of the N. I. I. P.," *J. of Nat'l Inst. of Indust. Psych.*, 1922, I, pp. 2–8.

"The Mansion House Meeting," *J. of Nat'l Inst. of Indust. Psych.*, 1922, I, pp. 59–67.

"Third Annual Report of the Industrial Research Board to 31st December, 1922 (including Personal Contributions from Investigators)," London, H. M. Stationery Office, 1923.

"The Vocational Research Work of the N. I. I. P. for the Year 1922" and "Annual Report of N. I. I. P. for the Year 1922," *J. of the Nat'l Inst. of Indust. Psych.*, 1923, I, pp. 165–167, pp. 213–222.

Gompers and Giant Power

By Carter Goodrich, *Washington, D. C.*

SAMUEL GOMPERS' article on "Giant Power" in the December issue of the *American Federationist* is a document of real public importance. It is interesting as a declaration of faith in increased production issued on behalf of organized labor. But it is even more significant as a statement and in part an illustration of a critical and far-sighted attitude toward the problem of the control of technical change for social ends.

Mr. Gompers begins his article with a glowing account of the promises held out by the proposals for the unification and development of the power production of the country in a *giant power* system. "The interest of the workers in any project calculated to increase the power at the command of the American people is manifest," for it is "the power per capita" of a people that makes a large part of "the difference between strength and weakness, between affluence and poverty." These proposals, he tells us, come with the promise to double this per capita power within ten years and beyond that they hold out the prospect of an "age whose productive capacity may easily become almost boundless."

But in spite of all this magnificent promise, Mr. Gompers does not propose to accept the giant power project blindly. There have been other great technical advances in the past and with them in almost every case have come tremendous "abuses" also, "largely coincidental" and unintended, to be sure, but none the less "terrible and costly." Mr. Gompers relies on no special magic in superpower to guarantee it against similar evil by-products; instead he makes an eloquent plea for foresight and social guidance:

> We are in the fortunate position of having one great industrial development so shaping itself that we may be in advance cognizant of its coming and in a position to take intelligent action in regard to its development.
>
> We, as a people, shall be foolish indeed, if this tremendous development is allowed to roll its great weight upon us without any action on our part looking to its control and direction. We have before us an opportunity to take one great engine and compel its course so that it shall be to the largest possible extent a well-balanced social asset, instead of an engine run primarily for profit and only secondarily for service.

Some of the phrases are old, but the central position is new and important. To be "in advance cognizant" of impending technical changes and to "compel their courses" so that they may fulfill their social promises without "coincidental" social losses, is very nearly a complete

statement of one of society's major problems.

Of the full program for which this ideal would call, however, Mr. Gompers' article suggests only a small part. Technical changes "roll their great weight" unexpectedly upon many social institutions of which he does not speak. In the past, for example, they have switched whole populations suddenly from country to city, or from Europe to America, and raised new and baffling problems of race and city life. There are students who are watching this new revolution with these problems of population in mind and with the hope of guiding it in terms of their study; but of this, and of others from among the subtler problems of the change, Mr. Gompers shows no awareness. And even on the question of the protection of the consumer from possible extortion by the companies that are to make up the power system, which he does consider, his inveterate distrust of government leaves his treatment highly inadequate. Much of his diagnosis of the present situation, though it is based too largely on the easy proof of the obsolescence of state lines and not enough on an analysis of the possibilities of federal control, is accurate enough; and his remark that "the political dog is scarcely able to handle the industrial porcupine" is an excellent summary. But surely part of the way out must be by teaching the political dog new tricks; and for that we shall need teachers less phrase-bound than Mr. Gompers, though in the meanwhile anything that he can do to sheath the quills of the porcupine will be highly appreciated.

But these are after all problems for others to solve, and Mr. Gompers himself disarms the criticism by the remark that "it is not wise for those who seek to protect the interests of the people to send all of their forces up one street." As for him, his chief interest in the change centers quite naturally and quite properly in one large question:

> Are the wage earners, the men and women who are to operate the machinery of generation and transmission and who are to operate the machinery of use . . . . . to find and hold their proper place in the human organization that is to control the new power?

We may not agree with Mr. Gompers that this question should be "paramount" in the consideration of the change. But it is immensely important, and in most technical changes it is neglected until after the event. In raising it before the change has "rolled its great weight" upon an unprepared group of unions, Mr. Gompers is doing the labor movement a great service.

But the article does more than state and face the problem. It offers also what it calls "Labor's Constructive Program" for its solution. The six planks are worth quoting in full:

> *First*, it is required that there be a full and frank acknowledgement on the part of the whole industry of the rôle which labor has to play and of its ability to offer coöperation in practical operation.
>
> *Second*, with labor's rôle fully acknowledged, there must then be a consciousness on the part of the whole industry that those who operate the industry in all of its branches are entrusted with vital functions and have obligations to those within the industry, to the natural wealth brought

into use and to other industries and the people as a whole.

Third, the experience of the industry must determine to a large extent how to organize the factors within the industry on a democratic basis that runs parallel to its functions, so as to discharge these various obligations with justice.

Fourth, with experience as a guide in the application of the principle, there must come into existence joint representative bodies, in which every useful element within the industry may have a voice and in such a manner that it will not be possible for the combined forces of some to smother the voices of others in pursuance of injustice.

Fifth, these joint organizations of representatives must have as their smallest unit the locality, after which larger units may follow in accordance with the natural lines found in the industry itself.

Sixth, the industry will find itself, as it has indeed already found itself, hampered by restricting laws placed on statute books by political organizations lacking the requisite understanding of industrial needs, or fearful lest an uncurbed industry might become a moloch; and it will be necessary to open the doors by clearing away obstructive legislation. This can not be done unless and until the industry establishes for itself a full public confidence, which can be maintained only by full and public industrial accounting. There must be, and the people will require, a knowledge that the industry knows and practices a moral obligation to the people and that it possesses an intelligence and a method of operation that will promote justice and the highest possible development of its own potentiality.

At first reading there seems to be nothing very new here. Aside from the last plank and the vague words about the consciousness of functions, Mr. Gompers' proposals seem to be the old ones of union organization and collective bargaining. But closer analysis shows a genuine new development behind the cautious phrases. Surely the unionism of the fifth point, for example, is a unionism that leaves more room for local self-expression and that adapts itself far more flexibly to "the natural lines of the industry" than the dominant unionism of the day. And surely the collective bargaining that is suggested is a bargaining that goes a long way on the road of workers' control and of responsible participation in the management of the industry. No doubt the consumer would need more protection than the scheme suggests, but there is real social promise in this picture of a new unionism playing a responsible rôle in the functioning of what one would be tempted to call a great Power Guild.

But how is all this to be achieved? And is it really intended as a program or only as a dream? The doubts are based on two sets of facts—those of labor's vested interests and those of labor's past defeats. If Mr. Gompers were in the mood for attacking the business control of industry, he might point out that the most important of the vested interests that are even now delaying the coming of superpower are those of the network of little private companies. But there are also vested interests of the unions in the way. The giant power plan involves the electrification of many railroads. That means the replacing of the highly skilled locomotive engineers with the less skilled operators of the electric engines, and there are even now rumors that the railway executives are looking to the change as a way of breaking the power of the Brotherhood of

Locomotive Engineers. This particular craft interest is not in Mr. Gompers' charge, but there are also A. F. of L. unions with a direct interest in jobs and skills that the change will make unnecessary. Here is a serious obstacle to agreement on a common program on the part of the movement he leads. But even suppose that this difficulty could be brushed aside: how clear is it that the American Federation of Labor could even then organize the industry? The question is not at all an academic one. Surely Mr. Gompers does not expect that the great companies are going to let themselves be unionized of their own accord, even by leaders who share their attitude toward government regulation. And the other great technical changes of the recent past have more often crippled existing unions than established new ones; many of the new industries seem almost as "union-proof" as Ford's. The stories of the coming of the new technology to steel and to the metal mines, of the introduction of the automatic tool in the metal trades, and of the growth of the rubber and automobile industries, are ominous examples. The union movement on the whole remains strong only in less thoroughly modernized industries. So far, at least, the unions have been unable to adapt themselves either to swift changes in technique or to the newer forms of American mass production. Here, then, is the real challenge to Mr. Gompers' program and to his leadership. If for this new undertaking he can throw off the craft philosophy that serves in simpler types of industrial organization and devise in its place a policy that will adapt union strategy and structure to "the natural lines" of a highly centralized and highly modernized industry, and if he can lead his slow-moving, conservative unions in a great organizing campaign based on this policy, there is real hope of the achievement of his constructive program. But if he cannot do these things, or if he does not mean to attempt them, the fine words of the platform represent only the playing with a daydream.

Mr. Gompers must see these difficulties as clearly as any outsider, but the article ignores them completely with an easy or else a strategic optimism. It exults that "as if by design . . . . . the new engine of production is coming into being at a time when the philosophy and practice of labor is ripe for its coming, ripe for its handling, ripe for the bringing of the best results to all the people!" That is a tall order in optimism; if the article really represents the "philosophy of labor," it is indeed a sign of a new readiness to face the problem, but so far the "practice of labor" has shown little evidence of the capacity for the guidance of technical changes. But for that matter the same is true of the practice of society, and Mr. Gompers' article is at the very least a suggestive contribution to the philosophy of the control of technique.

News Notes

INTENSIVE TRAINING IN PERSONNEL ADMINISTRATION

Dr. Henry C. Metcalf states that the next eight weeks' intensive course to be given by the Bureau of Personnel Administration begins on February 4 and ends March 29. This course offers instruction and training for industrial executives and professional men and women who wish to deal more effectively with personnel problems. It requires a morning and afternoon session and three hours of outside preparation daily. The course includes lectures and discussions on the fundamental principles of personnel administration and their application in industry and government to the technique of labor employment and maintenance, health and safety, instruction and training, wages and incentives, research, employees' service, joint control, administrative policies and executive methods; supplementary study of plant layout, organization and operation, labor statistics and labor legislation; special lectures by personnel directors, employment managers, industrial physicians and psychologists, safety engineers, training directors, consulting engineers and government administrators; and weekly visits to industrial and mercantile establishments in which personnel work is carried on. The subject matter is treated objectively; the aim of the work is to enable the student to formulate for himself a code which will correlate his intensive training with his previous background and experience.

The Bureau of Personnel Administration has its headquarters at 17 W. 47th Street, New York City.

INTENSIVE STUDY OF INDUSTRIAL DISEASES AND ACCIDENTS

Dr. Leland E. Cofer, Director of the Division of Industrial Hygiene for New York State, in an address before the National Safety Congress at Buffalo in October, outlined the New York State Department of Labor's proposed intensive study of industrial diseases and accidents.

Dr. Cofer pointed out that although the field for study consists of 1,400,000 industrial workers in 61,000 establishments, the Division of Industrial Hygiene has been functioning for some time and will use to advantage the large number and variety of its industrial court acts for intensive study. In this connection, however, the coöperation of employers and employees will be sought.

What the program calls for

"Until the present force can be augmented it is thought best to conduct the Division under the following three sections:

"First. Section of Expert Inspection.

"Second. Section of Special Research.

"Third. Section of Accident Prevention.

"There should be added to the Division of Industrial Hygiene a person especially trained to have immediate supervision of the Section of Public Education in Industrial Disease and Accident Prevention but until this can be provided for, our available talent and resources must be used to their full capacity.

"The Section of Expert Inspection will give expert assistance to the Bureau of Research and Codes in matters relating to the character and design of the various devices for removing noxious fumes and dusts from work rooms, and assistance relative to accident prevention devices. It will also give assistance on projects concerning the heating, lighting, and ventilation of factory buildings. Under this section special medical examination will be made of persons employed in factories or mercantile establishments who are suffering from any disease associated with in-

dustry, and physical examinations of children between 14 and 16 years of age employed in factories or mercantile establishments as required by Paragraph 145 of the Labor Law.

"The Section of Special Research will endeavor to work under the following program:

"Inquiry into the morbidity of diseases caused by industry.

"Research in relatively unexplored fields, both with respect to diseases and mechanical devices for their prevention.

"In order to proceed with the inquiry into the morbidity of industrial diseases in the state, it will be necessary to enlist the interest and help of those members of the medical profession who are associated with industry, for this knowledge does not seem to be procurable in any other way. If industrial clinics could be established at large hospitals much definite and valuable information could also be obtained, and it would seem that more could be done than is being done in this direction.

"Naturally, this information can be obtained only by degrees from the medical profession at large and only as the individual physician comes to the realization of the important assistance he can render by looking for and recording the industrial factor when present in certain cases coming under his observation. The reporting of cases will not interfere with the physician's practice. On the contrary it should develop a new line of research and opportunity.

"If this information could be obtained and tabulated it would enable the study of two sets of 'standards'; one set covering the status of the worker who has been eliminated from industry on account of disease or injury and who can only be found either in his home or in some institution; and the other set, the worker who is somewhat ill, but who continues at his occupation. Extremes in severity and mildness of disease could be tabulated when found even though they might not be classified as 'standards.' A study of the standards of industrial disease would include research into the effect of the improvement or of the variations of environment upon the workers, and also the effect of the elimination from certain industries of disease-producing chemicals; or in other words the alleged or actual benefit of the teachings of industrial hygiene through the application of the sciences of medicine and mechanics."

"Research in unexplored fields" can originate from problems arising in connection with the work of expert inspection.

"While there is an abundance of most valuable literature available, it has been developed exhaustively along some lines and to a very limited degree in others. Then too, some of the literature is out of date in that it deals mainly with conditions in industry which existed before the investigation was made, the findings of which caused the said conditions to be improved. What it is desirable to do is to make a careful intensive examination of the workers in one or more of the hazardous trades and study the effects of certain environments upon the body from a physiological standpoint. For example, to study the blood changes incident to exposure to high temperature and humidity as in the case of laundry workers.

"In regard to research into the matter of mechanical devices for the prevention of industrial diseases, the Department of Labor has already contributed much work of a very valuable nature. The result of this can be seen in the New York State Labor Code which is being referred to constantly and adopted more or less as a model. This work should be increased in its scope, and expert assistance should be rendered along the lines of suggesting, after proper experiment, devices to remove the health hazards of industry. For example, I saw an exhaust device for removing granite dust in operation a few days ago. The designer, the stone cutter himself, claimed it removed 60 per cent of the dust. The Industrial Hygiene Division will soon have as a part of its personnel a well qualified mechanical engineer. It will be part of his duty to attempt to improve if not to protect this and other devices of a similar nature."

The Section of Accident Prevention will make statistical studies and researches on accident data in order to determine the relationships existing between accidents

and such factors as fatigue, physical condition, temperature, light, and length of service.

"Mr. Bernard L. Shientag, the Industrial Commissioner, has planned a very comprehensive educational campaign for the state with respect to safety devices, and there is no doubt that bringing the subject directly to the notice of the people at large by means of models, posters, lantern slides, moving pictures and lectures will be followed by good results."

ANNUAL MEETING OF NATIONAL COMMITTEE FOR MENTAL HYGIENE

The fourteenth annual meeting of the National Committee for Mental Hygiene was held in New York City on November 8, 1923. The "Mental Hygiene Bulletin" for November reports the election of Dr. William H. Welch, Director of the School of Hygiene and Public Health, Johns Hopkins University, as President of the National Committee. Doctor Welch succeeds Dr. Walter B. James, who has held this office for nearly five years.

"Addresses were made by Dr. Frankwood E. Williams, Medical Director of the Committee, who spoke on special phases of its activities; by Dr. V. V. Anderson, Director of the Division on Prevention of Delinquency, who sketched the development and operation of the Committee's child-guidance clinics, which are financed under a special appropriation from the Commonwealth Fund; and by Mr. Clifford W. Beers, Secretary of the Committee, who gave an account of his recent trip to Europe to promote mental hygiene in other countries and to further the First International Congress of Mental Hygiene."

Dr. Frankwood E. Williams, in his brief review of the Committee's work for the past year, laid emphasis upon its preventive aspects. He said, in part, "Man is ceasing to take his mental life for granted and is beginning to examine it critically. This is one of the most hopeful signs of the times. The possibility of further social progress lies in this direction. Man will learn to distinguish between leaders whose intellects are enmeshed in childish emotions and those whose emotions have grown up along with their intellectual development."

THE BUILDING OF THE NATIONAL ACADEMY OF SCIENCES

In the issue of "Science" for October 19, 1923, there appears an abstract of a memorandum to the Carnegie Corporation of New York on the building designed by Bertram G. Goodhue for the National Academy of Sciences and the National Research Council.

"The architectural character of the building has been largely determined by its surroundings, being what Charles Moore calls the 'Spirit of Washington.' While classic in its appearance, it is not severely formal and lacks the rows of columns so familiar to the visitor to the National Capital.

"The general character of the exterior is Greek even to the varying of the height of the masonry courses."

The building will cost in the neighborhood of $1,350,000 and will include, in addition to the workaday offices for the National Academy of Sciences and the ten divisions of the National Research Council, a library with an attendant reading room, meeting room, lecture hall, auditorium, and public exhibition rooms.

"In general the project is about 75 per cent completed. Nothing has been started on the grading of the site for carrying out the plans for the grounds, which involve a main approach with side approaches, reflecting pools and other landscape features.

"The land purchased by the National Academy of Sciences through funds amounting to $185,000 raised by subscription, is in a most favorable location opposite one face of the Lincoln Memorial, with which the white marble Greek style of the Academy-Research Council building is in harmony.

"The building is attracting unusual attention and its advent will signalize a very important step in the development of science in the United States."

Book Reviews

EDUCATION AND INDUSTRY

By Henry C. Link. New York: The Macmillan Company, 1923. Pp. 265

REVIEWED BY J. V. L. MORRIS

A decade ago, the favorite topic for those who would present the latest enthusiasm in education was Vocational Education. Now the charm of novelty is gone but the problem is still as insistent to those who as educators would guide our youth into lives of useful activity and to the thoughtful directors of the great industrial enterprises of America, who are finding the human factor as much in need of improvement as the mechanical if success is to be achieved.

With a background of thorough scientific training and a rich experience in the fields discussed, Dr. Link would seem to have made a significant contribution toward clearing up some of the obscurities which are involved in rendering the worker more capable of and ready for his work.

He first presents some of the rather ambitious attempts of some corporations to educate their workers and the efforts on the part of some educators to meet the needs of industry through educational opportunity which will directly minister to industrial effectiveness.

To define the scope of education properly belonging to industry on the one hand and to the schools on the other, he suggests the principle of "direct and exclusive" for the former and "indirect and distributed benefits" as belonging to the latter. "Following this criterion, a particular company will assume the financial and managerial responsibility for those activities which contribute most directly and exclusively to the conduct of its business and which it alone is peculiarly able to carry on. Under this heading would come vestibule schools, the training of salesmen, the factory paper, foremen's and executives' training classes, training in office procedure, general information regarding the history and business of the company, etc. By the same criterion the chief responsibility for those courses which are based on material which is not peculiar to a particular company and from which benefits are distributed throughout the community rather than within a certain enterprise should be assumed by the community or the individual himself" (p. 17). Here he includes the fundamentals of education, French, chemistry, etc. He also assumes that there are educational activities which can be conducted to best advantage "if the schools do a part of the teaching and industries the rest." Here he places mechanical drawing, traffic management, part time courses, blue print reading, etc.

He has evidently given some thoughtful consideration to industrial motion pictures to which he devotes a chapter. He believes that these offer a field for useful educational coöperation between industry and education. To this end he would have state and national bureaus established which would determine the films suitable for use in various educational classes and would promote their use in the schools, for he recognizes that "only about one-fiftieth" of the 200,000 schools of the country are equipped to project pictures.

It is a part of his plan that the larger industrial corporations would coöperate

in producing the films illustrating their activities as has already been done by some concerns. This is based upon the proposition that the enlightenment of the public as represented in the schools and other educational gatherings where the films might be shown would sufficiently benefit the company concerned to warrant the outlay.

One can imagine a series of such films utilized in a junior high school course entitled "Industry," in which such processes as that of tanning and preparing leather and its fabrication into a shoe would be shown. Again Henry Ford might be interested in preparing a film showing the machining and finishing of the parts and their assemblage into the completed automobile which could be made equal to or of even greater educational value than a trip through his marvelous factory. Paper making, the spinning and weaving of cloth and the other great industries offer a romance of activity which under the stimulus of the right sort of teachers could produce extremely useful educational material. Technical education in high school and college could undoubtedly be similarly enriched. Of course the pedagogical fact would have to be recognized that merely seeing the film of an industrial procedure is but a receptive process. To be educative in a marked degree, it must be followed by activities on the part of the students of retelling, discussion, and theme writing.

There is a sane discussion of Americanization. The usual failure of the public school system and of company attempts in this province are discussed and the factors which have crowned more recent attempts with success are set forth; such as (1) holding the classes during work hours, (2) utilizing the influence of the foreman, (3) emphasizing the acquisition of English rather than the citizenship motive. Mr. Link looks with decided disfavor upon remuneration of employees for attendance at English classes and believes it is an activity of which the cost should be met from public funds. In other words he would have the active coöperation of the industrial corporation, even to the extent of excusing the men to attend the classes during work hours and presumably furnishing space for teaching within the plant but holds that the expense must be met by the public educational system.

Quite clearly a distinction must be made between jobs which will allow the man to be excused during working hours for his English class and those which will not. It is believed by the reviewer that the bulk of the jobs open to recent immigrants fall in the latter group. However some utilization of the hours just before going to work or at the end of the shift—if there are three shifts—has met with success in some plants even though we must recognize that in many occupations the men at the end of their shift are too exhausted, grimy, and overheated for effective study.

Mr. Link makes a reasonable demand for national promotion of this work through the proposed federal department of education, with distribution of aid to the states for this work on the basis of their alien population as essential for "100 per cent Americanization."

He also rightly couples the program with a system of probation for immigrants which would make compulsory the acquisition of English if the alien would remain beyond the period of probation in this country, and thus throws the responsibility for acquiring English and knowledge of our institutions upon him as well as upon the public which can only provide the means for such acquisition.

The responsibility for providing *general education* for workers is rightly placed outside the legitimate scope of activities for the industrial corporation even though some have at times made ambitious attempts in that direction. He would seem right in believing that University Extension by classes or where necessary by correspondence had here a legitimate field for further development. He believes also that the compulsory continuation classes for minors now provided in most of our industrial states could and should be more generally conducted in the industries and places of business.

He is undoubtedly right in believing that *employee good will* is a tangible asset

for which a company may legitimately make a considerable outlay, but is equally sound in denunciating propaganda which has at times been attempted to this end through "booklets, pamphlets, letters, pay envelope notices, bulletin board notices, moving pictures, or lectures." He acknowlegdes that all these media are legitimate in themselves and with a recognition of the intelligence of the workman, even though accompanied with limited schooling may be used for genuine education to the desired end of promoting good will.

To make valid distinctions between *propaganda* and *education* he holds that the former is characterized by (1) surreptitiousness, (2) self interest, (3) paternalism, (4) indiscriminate optimism, (5) negative suggestion, and (6) "opinions" with the whole of which he would contrast education as made up of facts so directly and constructively presented as to make their truth patent.

He believes that much may be accomplished through the company paper, the functions of which he elaborates with clearness. Booklets, libraries, and trips of inspection, advertisements and sales publicity are also analyzed and discussed relative to their value for promoting employee insight and resulting good will.

In considering the specific training for the particular factory employments, the chapter on the *vestibule school* seems particularly useful and authoritative as growing out of Mr. Link's extended experience. That it was a device born of war-time necessity for bringing the recruit up to standard production with utmost expedition would not seem to disestablish its utility or economy under the more stable conditions of normal production.

The chapters on *Vocational Guidance* and *Trade Schools* are commended to public educators though they may be profitably read by industrial executives. It should be noted apprenticeship is recognized as the essential route to efficiency in the limited groups of highly skilled trades remaining in industry and that the major part of production is now by specialties for which the vestibule school is the only justifiable form of training.

There are also valuable chapters on the training of *executives*, *foremen*, and *salesmen*. There is much here of significance to the general educator though the suggestions are particularly pertinent to personnel departments.

As regards the foremen, the limited utility of lectures by company presidents and managers, however popularly received, and the highly elaborate educational programs are deprecated for their limited value, and the discussion method developed by Mr. Charles R. Allen is strongly endorsed.

It may be a little surprising to discover that in the eyes of Mr. Link the chief value of *works councils* is educational. From his viewpoint such a policy is chiefly useful in interpreting the company's policy developed by the trained managerial force to the rank and file. He condemns the so-called Industrial Democracy plans which suggest the transference of policy determination from the management to employee representatives and keenly observes that plans for making a House of Representatives of employee representatives, a Senate of the foremen, and a Cabinet of the president and his managers resembles a limited monarchy rather than genuine industrial democracy.

There is a valuable chapter on *Subnormals in Industry*. He cites several interesting experiments to show that these people can learn routine occupations which are now so numerous in many types of industry, and can be trained for effective self maintenance. He also shows the inadvisability of compulsory education laws which prevent their entrance into industry until they can satisfy educational authorities of their competency in fractions which are beyond their limited capacities although this deficiency does not prevent their useful employment.

It is hoped that this summary has established the value of this book as a sane discussion of the possibilities of educational activities of the industrial corporation and that it is a significant contribution to the subject of industrial education for both the public educator and those concerned in the personnel problems of industry.

RAILROAD WAGES AND WORKING RULES

National Industrial Conference Board. Research Report Number 46. New York: The Century Company, 1922. Pp. 130

REVIEWED BY JOHN S. KEIR

In the Foreword to this report the purpose of the study is stated to be "to bring together the essential facts regarding wages and working rules and to present them in a way which will set them clearly before those engaged in industry and before the public at large."

To this end a brief chapter on Summary and General Conclusions is put at the beginning of the study, the supporting data following later.

In the summary, the greater part of the text deals with the findings in regard to wages. In the report proper, however, wages are treated in one chapter of 37 pages, the rest of the 130 pages of the report dealing with Historical Introduction, Working Rules and the Economic Conditions of the Railroads. Either the summary or the report seems poorly balanced in light of the stated purpose. One feels that possibly there was a thesis to be proved rather than drawn from the data gathered.

The study contains excellent charts. Sources of information for the charts, however, are limited to either Interstate Commerce Commission reports or other studies of the National Industrial Conference Board.

MENTAL CAUSES OF ACCIDENTS

By Boyd Fisher. Boston: Houghton Mifflin Company, 1922

REVIEWED BY THELMA GWINN

In his discussion of the mental causes of accidents Boyd Fisher has given to personnel managers and safety leaders a clear and helpful discussion of the Psychological principles which are related to their problem. The writer, being himself an industrial man, has handled his subject in a way which should be interesting to safety men. His discussion is not so technical that they will not be able to understand it and relate it to their work.

It was the author's hope that the book would be useful as text material for classes in applied psychology and in industrial relations. It would be a good reference book for such classes and one which students should know about and know, but probably does not contain enough material for a whole course.

Fifteen mental causes of accidents are discussed. These may be classified as follows:

I. Ignorance
   1. Ignorance of the English language
   2. Inexperience
   3. Mental limitation

II. Predispositions
   1. Sense defects
   2. Mental sets, faulty attitudes, excitability
   3. Subconscious errors
   4. Faulty habits (hurry)

III. Inattention
   1. Boredom
   2. Distraction

IV. Preoccupation
   1. Worry, strife
   2. Mental disease

V. Depression
   1. Disease
   2. Drugs, drink, etc.
   3. Faulty plant conditions
   4. Energy blockade (so-called fatigue)

The methods recommended for avoiding and correcting these difficulties are job analysis, improved working conditions, better selection and assignment on the basis of mental fitness and physical fitness, training (indoctrination), organization (mobilization), periodic personnel survey, individual adjustments, and accident post-mortems.

The discussion of each part of the subject is helped by the use of much illustrative material in the form of interesting cases. The suggestions are practical, if they can be acted upon gradually. This fact is pointed out in the text, and the author also gives suggestions as to what are the most important things to do first.

The last chapter is a discussion of psychological literature which would be interesting to the safety man, personnel manager, and lay readers in the subject.

A GUIDE TO EDUCATIONAL MEASUREMENTS

By H. C. Hines. Boston: Houghton Mifflin Company, 1923. Pp. 270

PSYCHOLOGY FOR STUDENTS OF EDUCATION

By A. I. Gates. New York: Macmillan Company. 1923. Pp. 489

Reviewed by Douglas Fryer

These two books, one a manual on the use of educational measurements and the other a general educational psychology dealing primarily with principles, are grouped because of their closely related point of view and because of their primary significance to the educational psychologist for whose use they are written. Dr. Hines' book is a collection into a small volume of the information a teacher in training should have concerning accepted measures of educational achievement, tests of general intelligence, and the facts of statistical procedure necessary in the treatment of testing results. The book is the first of its kind to combine the elements in these three fields into an introductory text. The work gives the appearance of filling a much felt want, particularly in the field of teacher training.

It would seem that this collection of information is of interest to the student working in the field of applied psychology in business as well as in education. The number of tests now produced—reaching into the many hundreds—requires every available assistance in the selection process. Dr. Hines has offered what he has pleased to call a "Three-Foot Shelf of Tests," for which he gives his recommendation of tests that should be included. This is found in complete form in the appendix of the book under the following headings: (1) Intelligence Tests, (2) Educational Tests (Elementary and Secondary), (3) Combination Tests. Occasional suggestions are made throughout the book upon the problem of testing aptitude and the available tests. With the exception of the first part of the book, a section of approximately 50 pages, which presents in a clear, concise and simple manner the elements of the statistical science, the book might be viewed as an authoritative selection and criticism of the best available testing measures for general intelligence and of achievement (in particular education achievement), including a description of the tests, indicating their strong and weak points on the basis of well established

criteria and giving recommendations for their application, and in addition, offering information where the testing materials may be secured.

"Psychology undertakes to analyze the situations which the world affords and the reactions that human beings make to them . . . . to account for the one in the terms of the other" (p. 27). This is the psychological generalization used by Professor Gates as the foundation of his *Psychology for Students of Education*. It provides a stimulus-response schema for the writing of a dynamic-biological psychology, similar to that used by Woodworth in his *Psychology, a Study of Mental Life* and open to the same criticisms (Cf. review of Woodworth's book by K. M. Dallenback, *A. J. of Psych.*, 1922, XXXIII, p. 430). The conception carries a vigorous appeal but is one to which it is difficult to relate all the facts of psychology, as the author, no doubt, has himself realized is not adhering to it completely.

Psychology for Students of Education describes in considerable detail the form and function of the receiving, connecting and reacting mechanisms upon which human behavior depends, following this by a discussion of the inherited equipment for man's activities, largely under the caption of instinctive response. The major portion of the book is given over to a discussion of the many sided problem of learning, which is of chief interest to the educational psychologist. It has been the writer's plan to present the general laws of learning in relation to their application to teaching. In addition he has presented the results of investigations in the field of the higher mental processes, material which has been largely ignored in the elementary textbook literature in educational psychology because of its incomplete conclusions. In the chapter upon "The Dynamic Rôle of Instincts" is use made of a number of psychoanalytic mechanisms in their relation to problems of training. The concluding chapters, "The Influence of Continuous Work, External Conditions, and Drugs Upon Efficiency," "The Nature of Individual Differences," "Intelligence," and "The Measurement, Organization and Correlation of Traits," are excellent summary reading for the applied psychologist interested in these problems.

The significance of the genetic method in the study of the problems of educational psychology has been but slightly recognized. That the wealth of material in this field has been quite largely ignored, is illustrated in the index, where there are no references to the works of the leading psychologist using this method of approach to the study of education, while there are thirty-one to the psychologist most representative of quantitative methods of measurement. The reader will note that the writer's "satisfier-annoyer" assumption, as a basis for the learning process, is quite open to serious experimental question. In fact, one who attempts the writing of a unitary general textbook of psychology has many difficult bridges to build, which is well illustrated in the book we are reviewing.

Dr. Gates' book is well adapted for use in a class in advanced educational psychology, or in a class in general psychology wishing to emphasize the learning process. It is not elementary enough for use as a text by a first year class in educational psychology, although it would serve as excellent reference material. The author has covered the field which he chooses to represent in a thorough manner and his presentation will be valuable to all those interested in the problems he discusses, but one may be permitted the regret that he has not envisaged his subject in a somewhat broader manner.

WAGES IN FOREIGN COUNTRIES

National Industrial Conference Board. Research Report Number 53. New York: The Century Company, 1922. Pp. 131

REVIEWED BY JOHN S. KEIR

The purpose of this study is stated to be "to present information in regard to wage trends and current wage rates in important European industrial countries."

To the above ends, the current wages and changes in wages are shown by selected industries by countries. Thus the wage situation in the building trades is shown in Great Britian, France, Belgium, Sweden, Italy and Germany. Mining, Metal Manufacturing, Chemicals and others in all totalling 12 groups are thus depicted. In some industries such as in the building trades and textiles, the same kind of information is given for the more important branches of those industries.

In this report, percentages are all given in the text proper, and other statistics are given by tables. Trends would probably have stood out more clearly had graphs been used to put over this information. In fact the greatest weakness of the report is that trends are not made clear. Current wages on the other hand, are clearly set forth.

All together this study is a useful compilation of material scattered through a host of industrial and governmental publications, brought together concisely in one publication.

Abstracts

Standards of Measurement of Ten Thousand Male Workers. L. R. THOMPSON AND ROLLO H. BRITTEN. Paper read before Industrial Hygiene Section, American Public Health Association, Annual Meeting, Boston, Mass., October 8–11, 1923.

During the last ten years numerous industrial surveys have been made by the United States Public Health Service, in the course of which physical examinations were made of 10,000 males and 2000 females. The authors point out the difficulties of interpreting general physical examinations, but feel that in view of the large numbers involved and the almost complete absence in the literature of data on physical or physiological measurements of industrial workers in this country, some statistical analysis of the group as a whole should be made. This paper was a preliminary discussion, primarily from the point of view of establishing insofar as possible standards of measurements for male workers of different races.

The statistical material presented included the distribution of workers of each race in each industry, the age distribution of workers of different races, distinctions between the races as to height and weight, records of blood pressure as compared with data from other sources, pulse rate by race, vision by race, and decline in the percentage with normal eyesight with advancing age. The data indicated that race was a factor which must at all times be taken into account in studying the physical condition of workers in industry in the United States. In a number of measurements the Slavonic and Italic groups contrasted with the Teutonic and Celtic. The analysis of the physical examinations is to be continued by a study of each specific industry, and in this study account will be taken of the racial differences revealed by the preliminary work.

Opportunities of Women in Advertising Agencies. MARY L. ALEXANDER. News-Bulletin of the Bureau of Vocational Information, November 15, 1923, pp. 1–3.

Though nearly a half of all employees of agencies are women only a third of these are in other than clerical positions. The greatest mistake of the college trained individual is an unwillingness to master the routine through minor supervised positions. On the basis of this experience one chooses the field of main interest, whether copy writing, research work, art work, media or campaign creating. The first two engage the larger groups of professional women advertisers. "A copy writer needs education, discrimination, imagination, and the ability to write." "For research work one must have either an analytic or statistical mind or the library instinct of being able to locate facts; or possess the sort of personality that is successful in securing information from people."

Some Thoughts on Personnel Work. RICHARD W. HUSBAND. News-Bulletin of the Bureau of Vocational Information, November 15, 1923, pp. 5–7.

Aims of personnel work in college are widely different according to the standard of production wanted in the college graduate; but college personnel practice always differs from that in Industry in centering on possibilities of future rather than immediate production. There is general belief in the *need* of such a personnel department in order that the physical, emotional and social development of each student may be studied, that he may be aided in choosing the proper courses and know why he is asked to pursue required courses, and so that he may have guidance as he plans to enter a professional school or business. The *method* of the personnel worker in a college is much the same as in

Industry; though his technical information must differ, to include a knowledge of educational policies, professional training schools, the value of mental tests, etc. He must use appropriate records of background and experience for each boy, develop a library for inquiring students, provide for adequate discussions with each student, and above all cultivate the spirit of research and self-development for the responsibility that is his.

Five Years of Employee Representation Under "The Bethlehem Plan." JOHN CALDER. The Iron Age, Vol. III, No. 24, June 14, 1923.

Records the views of a prominent consulting engineer on "The Bethlehem Plan."

The conference committee system set up at the Bethlehem plant of the Bethlehem Steel Corporation in the fall of 1918 by the War Labor Board lost the respect of both employee and employer, for it was in no sense representative of all the workers. However, in October, 1918, the employees of the Steelton, Lebanon, and Maryland plants, who had not been under War Board regulation, as were the employees of the Bethlehem plant, in conference with the company representatives, adopted that mutually acceptable scheme known as "The Bethlehem Plan." At present seven of the Company's steel plants and six of the seven shipbuilding plants are using the Plan to advantage.

The basis of representation is one representative for each 100 employees in plants employing less than 1500; one for each 200 employees in plants employing 1500 to 10,000; and one for each 300 employees in plants employing more than 10,000. There is a provision that in no case shall the employees' representatives number less than ten. The qualifications for voting and for election are respectively eighteen years of age and sixty days' employment, and twenty-one years of age and six months' employment, with citizenship or first papers. Company officials and those hiring or discharging are disqualified.

"The unique feature of the Bethlehem idea is that the employees of each of its plants are *trusted* to organize as a body, to meet through their collective representatives of their own choosing and to formulate their opinions or requests. In all this they have full access to the company's information, with the assistant to the president at headquarters and his special representatives at each plant devoting themselves to the work and available at all times for conference. In other words, there is not the slightest attempt at the initial stage of any issue to condition the arrangements under which the whole representative body of the employees or any committee of that body may thrash out the matter among themselves."

The employees, ninety per cent of whom take part in the elections, usually elect as their representatives only able fellow-workmen with years of experience. The average service period of the ninety-eight elected workmen at the main plant is twelve years, and the average over all plants is eight years.

The actual types of cases adjusted through the use of the Plan refute the popular idea that such a plan does not work for the best interests of the employees. The following classification shows the types of cases adjusted and the disposition made of them.

Classification of cases adjusted under the Bethlehem Plan and the disposition made of them

Cases	*Number*
Employment and Working Conditions	612
Wages, Piece Work, Bonus and Tonnage Schedules	570
Safety and Prevention of Accidents	298
Practice, Methods and Economy	298
Health and Works Sanitation	184
Employees' Transportation	162
Pensions and Relief	122
Housing, Domestic Economies and Living Conditions	50
Education and Publications	22
Athletics and Recreation	12
Rules, Ways and Means	35
Total	2365

Disposition of cases	
Settled in the affirmative*	1682
Settled in the negative	330
Withdrawn by employees	103
Compromised	201
Pending settlement	49
Total	2365

* In favor of employees.

"President Grace does not claim, nor do employers similarly situated, that the ultimate form of employee coöperation has been reached. What has been proved in five years at Bethlehem's plants is that it is not intelligence which has to be feared, but ignorance and isolation; ignorance everywhere—in high positions and in the lowliest, about the facts of life, of the day's job and of the feelings and fancies of 'the other fellow.' To understand is to sympathize and then to act intelligently without paternalism or condescension in providing a mutually self-respecting basis of cooperation. What that basis will be ten years from now no one can predict. What it might be today is abundantly manifested. It is capitalism's move and Bethlehem has shown the way."

The Great Demand for Light. KURT VAN STAM. Forbes, November 10, 1923, Vol. XIII, No. 3, pp. 145, 146.

Recounts the possibilities in light. Light is likely to prove a great factor in raising the standard of living in America. It is capable of increasing our efficiency in our industries. It will enable us to derive the most benefit from art. It will serve as an aid to health.

For each act of production there is the one best light. When these facts become widely known and thousands begin to work out problems in lighting betterment, "progress will move in bounds."

Opportunities in Library Work. ESTHER JOHNSON. News-Bulletin of the Bureau of Vocational Information, November 1, 1923, pp. 1–2, 5–6.

Describes the various fields of library work, especially the rapidly expanding school librarian service. Personalities are the greatest need for proper contacts with high school students. A division of library workers is well under way: the professional and the clerical workers, college graduation becoming indispensable for the former. The usual library training classes develop the clerical efficiency, while a year of post graduate study should be the minimum for the expert professional worker.

Why Vauclain Has no Frills at the Baldwin Works. WILLIAM A. MCGARRY. Forbes, November 10, 1923, Vol. XIII, No. 3, pp. 135, 136, 153.

Tells how Samuel M. Vauclain, President of the Baldwin Locomotive Works, operates his plant without industrial welfare.

In face of much opposition from other employers, Mr. Vauclain advocates a fair wage without provision for recreation and improvement of employees, and without bonuses, gifts and pensions.

"No individual is more independent than the average American workingman. . . . . He wants a fair rate of pay and no unasked-for advice about his personal affairs."

The Baldwin Works maintains a ten-hour day and a thirteen-hour night, five nights a week, in spite of the recent ruling of the Steel Corporation abolishing the 12 hour day. Eighty per cent of the men once employed at the plant return after leaving.

The employees are governed by the industrial policy of the company which was established in 1831 by the founder of the Baldwin Works, Matthias Baldwin, and is taken from Thessalonians 3: 6–15.